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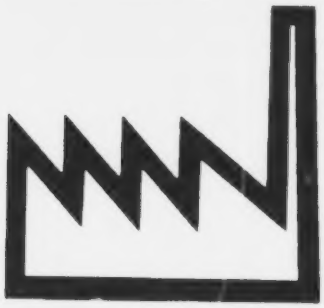

PRELIMINARY REPORT
INDUSTRY SERIES

1987 Census of Manufactures

MC87-I-36D(P)
Issued June 1989

COMMUNICATION EQUIPMENT, INCLUDING RADIO AND TELEVISION

Industries 3651, 3652, 3661, 3663, and 3669

INTRODUCTION

This report presents preliminary statistics from the 1987 Census of Manufactures for those establishments classified in the industries listed above. These data will be superseded by a more comprehensive final paperbound report. The method of data collection and use of administrative data are discussed in detail in the appendix.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The definitions of these industries are the same as those used in the 1987 Standard Industrial Classification (SIC) Manual.[1]

INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT

In the 1987 Census of Manufactures, Industry 3651, Household Audio and Video Equipment, had employment of 30.7 thousand. The employment figure was 37 percent below the 48.4 thousand reported in 1982.

The total value of shipments for establishments classified in this industry was $5.8 billion. The products primary to this industry appear in table 2 and aggregated to $5.8 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $4.2 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3652, PRERECORDED RECORDS AND TAPES

In the 1987 Census of Manufactures, Industry 3652, Prerecorded Records and Tapes, had employment of 13.0 thousand.

The total value of shipments for establishments classified in this industry was $1.9 billion. The products primary to this industry appear in table 2 and aggregated to $1.8 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $544.2 million in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS

In the 1987 Census of Manufactures, Industry 3661, Telephone and Telegraph Apparatus, had employment of 111.1 thousand.

The total value of shipments for establishments classified in this industry was $17.5 billion. The products primary to this industry appear in table 2 and aggregated to $16.3 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $7.9 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT

In the 1987 Census of Manufactures, Industry 3663, Radio and Television Communications Equipment, had employment of 124.6 thousand.

[1] **Standard Industrial Classification Manual: 1987.** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

Address inquiries to Bureau of the Census, Industry Division, Washington, DC 20233, or call **Michael Narod** (301) 763-7304.

U.S. Department of Commerce
BUREAU OF THE CENSUS

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The total value of shipments for establishments classified in this industry was $14.3 billion. The products primary to this industry appear in table 2 and aggregated to $13.3 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $5.3 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.

In the 1987 Census of Manufactures, Industry 3669, Communications Equipment, N.E.C., had employment of 21.0 thousand.

The total value of shipments for establishments classified in this industry was $2.1 billion. The products primary to this industry appear in table 2 and aggregated to $2.1 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $846.0 million in 1987. Data on specific materials consumed appear in table 3.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in the tables in this publication:

-	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
(X)	Not applicable.
(Z)	Less than half the unit shown.
do	Ditto.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

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Table 1. Historical Statistics for the Industry: 1987 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix.]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization (percent)	Ratios Coverage (percent)
INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT															
1987 Census	(NA)	368	144	30.7	574.7	23.5	45.0	360.7	1 625.9	4 230.6	5 817.7	147.4	847.5	(NA)	(NA)
1986 ASM	(NA)	(NA)	(NA)	44.9	1 067.9	33.7	65.6	687.4	2 539.2	6 994.6	9 363.9	240.5	1 246.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	45.1	1 033.2	33.7	64.6	676.5	2 323.1	6 333.9	8 888.1	252.9	1 114.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	47.5	1 038.0	35.9	68.9	678.6	2 868.0	5 642.5	8 216.9	255.9	1 241.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	45.3	935.9	32.5	64.8	594.2	2 096.6	4 648.4	6 772.8	166.7	893.0	(NA)	(NA)
1982 Census	432	458	182	48.4	862.3	35.4	65.3	546.2	2 010.6	3 967.2	6 063.9	140.9	888.4	90	95
1981 ASM	(NA)	(NA)	(NA)	60.6	1 038.4	44.6	83.2	663.5	2 608.1	4 549.4	7 057.8	187.2	1 145.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	65.0	996.1	47.7	90.9	625.4	2 705.2	4 177.3	6 798.8	159.3	1 105.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	68.4	915.7	51.1	96.2	618.3	2 559.1	4 029.4	6 572.7	165.2	1 016.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	76.7	946.3	57.5	105.2	612.2	2 617.7	3 902.6	6 441.9	118.5	1 004.2	(NA)	(NA)
1977 Census	547	581	192	74.6	852.4	57.6	106.6	570.0	2 351.8	3 393.9	5 732.6	105.8	835.0	94	98
1976 ASM	(NA)	(NA)	(NA)	71.5	785.3	53.8	100.3	505.3	2 090.1	2 992.5	5 056.4	86.7	755.8	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	68.8	693.8	52.3	96.3	428.8	1 542.5	2 760.4	4 443.6	75.2	750.0	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	87.7	734.1	68.9	124.1	499.1	1 819.2	3 129.9	4 865.0	104.5	913.3	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	92.1	742.6	75.0	140.7	527.5	2 214.2	3 090.2	5 146.8	79.6	860.8	(NA)	(NA)
1972 Census	344	372	164	86.5	651.4	69.8	132.4	453.6	1 807.8	2 715.4	4 440.1	58.6	664.9	95	99
INDUSTRY 3652, PRERECORDED RECORDS AND TAPES[5]															
1987 Census	(NA)	450	89	13.0	258.4	9.9	20.0	156.7	1 333.7	554.2	1 879.8	77.2	152.0	(NA)	(NA)
INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS[6]															
1987 Census	(NA)	456	287	111.1	3 146.3	57.9	108.3	1 326.4	9 503.4	7 910.5	17 456.4	549.0	3 065.3	(NA)	(NA)
INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT[6]															
1987 Census	(NA)	599	416	124.6	3 758.9	57.8	114.2	1 274.2	9 121.9	5 262.7	14 293.7	626.4	2 702.6	(NA)	(NA)
INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.[6]															
1987 Census	(NA)	376	156	21.0	512.7	10.7	20.6	187.1	1 278.1	846.0	2 126.2	62.2	497.8	(NA)	(NA)

Note: Establishments of single unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. Data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were estimated based on administrative record information from other agencies in conjunction with industry averages. These establishments accounted for the following percent of total value of shipments: SIC 3651, 7%; SIC 3652, 16%; SIC 3661, 6%; SIC 3663, 4%; and 3669, 13%.

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the industry chapter.

[2]For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during year.

[4]Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufactures in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacture are not comparable to prior-year data.

[5]Industry content is new for 1987, and therefore, the 1987 data are not comparable to prior years data. For 1987, record publishers are reclassified to SIC industry 6794, Patent Owners and Lessors. Producers of video tapes and discs prerecorded for home entertainment are reclassified in SIC industry 7819, Services Allied to Motion Picture Production, and producers of prepackaged computer software are reclassified in SIC industry 7372, Prepackaged Software.

[6]Industry definition is new for 1987 Census of Manufactures. An explanation of the Standard Industrial Classification revision will appear in the final industry series text that supercedes this report.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987 Number of companies with shipments of $100,000 or more	1987 Value of product shipments[1] (million dollars)	1982 Number of companies with shipments of $100,000 or more	1982 Value of product shipments[1] (million dollars)
3651- --	**RADIO RECEIVERS, TELEVISION SETS, PHONOGRAPHS, SPEAKERS, AND RELATED EQUIPMENT**				
	Total	**(NA)**	**5 843.5**	**(NA)**	**5 415.1**
36511 --	Home, portable, and automobile radios, and radio-phonograph-tape recorder combinations				
36511 00	Home, portable, and automobile radios, and radio-phonograph-tape recorder combinations (for additional detail, see Current Industrial Report MA-36M, Radio and Television Receivers, Phonographs, and Related Equipment)	(NA)	470.1	21	783.4
36512 --	Television receivers, including television combinations				
36512 00	Television receivers, including television-radio-phonograph-tape recorder combination models (for additional detail, see Current Industrial Report MA-36M, Radio and Television Receivers, Phonographs, and Related Equipment)	(NA)	3 784.4	18	3 386.0

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987		1982	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3651- —	**RADIO RECEIVERS, TELEVISION SETS, PHONOGRAPHS, SPEAKERS, AND RELATED EQUIPMENT**—Con.				
36514 —	Consumer high fidelity components:				
36514 00	Consumer high fidelity components, including audio and video recorders and players, stereo compact systems, tuners, amplifiers, receivers, television chassis, and other home-type audio equipment, excluding earphones and headsets, phonograph cartridges and pickups, phonograph needles and styli (for additional detail, see Current Industrial Report MA-36M, Radio and Television Receivers, Phonographs, and Related Equipment)	(NA)	290.5	69	312.0
36515 —	Speaker systems, microphones, home-type electronic kits, and commercial sound equipment, including public address systems:				
36515 00	Speakers, including loudspeaker systems and loudspeakers sold separately, microphones, home-type electronic kits, and commercial sound equipment (except broadcast), including public address systems (for additional detail, see Current Industrial Report MA-36M, Radio and Television Receivers, Phonographs, and Related Equipment)	(NA)	898.9	123	783.9
36510 —	Radio receivers, television sets, phonographs, speakers, and related equipment, n.s.k.	(NA)	399.6	(NA)	149.9
36510 00	Radio receivers, television sets, phonographs, speakers, and related equipment, n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	224.7	(NA)	61.0
36510 02	Radio receivers, television sets, phonographs, speakers, and related equipment, n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	174.9	(NA)	88.9

1987 product code	Product	1987			1982		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3652- —	**PHONOGRAPH RECORDS AND PRERECORDED AUDIO TAPES AND DISCS**						
	Total	**(NA)**	**(X)**	**1 817.6**	**(NA)**	**(X)**	**(3)**
36520 —	Phonograph records and prerecorded audio tapes and discs:						
	Audio discs or records (including compact discs, prerecorded):						
	45 rpm:						
36520 01	7 inch single — millions	(NA)	164.2	56.9	(NA)	(NA)	(NA)
36520 03	12 inch single — do.	(NA)	(S)	7.9	(NA)	(NA)	(NA)
36520 05	33 1/3 rpm (LP), excluding digitally mastered records for consumer use — do.	(NA)	262.1	282.2	(NA)	(NA)	(NA)
36520 07	Compact disc (CD) — do.	(NA)	*68.9	228.9	(NA)	(NA)	(NA)
36520 09	Other, including digitally mastered records for consumer use, and master records used to press commercial records — do.	(NA)	(S)	12.7	(NA)	(NA)	(NA)
	Audio tapes, prerecorded:						
36520 11	Cassette — do.	(NA)	**692.9	900.8	(NA)	(NA)	(NA)
36520 19	Other, including 8 track	(NA)	(X)	6.8	(NA)	(X)	(NA)
36520 00	Phonograph records and prerecorded audio tapes and discs, n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	(X)	257.5	(NA)	(X)	(NA)
36520 02	Phonograph records and prerecorded audio tapes and discs, n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	(X)	63.9	(NA)	(X)	(NA)

1987 product code	Product	1987		1982	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3661- —	**TELEPHONE AND TELEGRAPH APPARATUS**				
	Total	**(NA)**	**16 348.9**	**(NA)**	**(4)**
36611 —	Telephone switching and switchboard equipment:				
36611 00	Telephone switching and switchboard equipment (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	7 705.3	63	4 569.4
36613 —	Carrier line equipment and modems, including auxiliary sets:				
36613 00	Carrier line equipment (office and line repeaters and line terminating carrier equipment) and modems (modulator-demodulator) (including auxiliary sets) (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	3 689.3	(NA)	(4)

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987		1982	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3661- --	**TELEPHONE AND TELEGRAPH APPARATUS**—Con.				
36614 --	Other telephone and telegraph (wire) apparatus:				
36614 00	Other telephone and telegraph (wire) apparatus (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	4 460.9	(NA)	(4)
36610 --	Telephone and telegraph apparatus, n.s.k.	(NA)	493.5	(NA)	238.6
36610 00	Telephone and telegraph apparatus, n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	383.8	(NA)	194.1
36610 02	Telephone and telegraph apparatus, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	109.7	(NA)	44.5
3663- --	**RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT**				
	Total	**(NA)**	**[3] 13 305.3**	**(NA)**	**[3] 8 587.1**
36631 --	Communication systems and equipment, except broadcast:				
36631 00	Communication systems and equipment (excluding broadcast), including microwave and mobile communications equipment (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	11 674.2	351	6 995.7
36632 --	Broadcast, studio, and related electronic equipment:				
36632 00	Broadcast, studio, and related electronic equipment (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	1 544.0	163	1 591.4
36630 --	Radio and television communications equipment, n.s.k.	(NA)	87.1	(NA)	(5)
36630 00	Radio and television communications equipment, n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	13.9	(NA)	(5)
36630 02	Radio and television communications equipment, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	73.2	(NA)	(5)
3669- --	**COMMUNICATIONS EQUIPMENT, N.E.C.**				
	Total	**(NA)**	**[2] 065.6**	**(NA)**	**[1] 410.0**
36691 --	Alarm systems:				
36691 00	Alarm systems (including intrusion and fire detection) (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	1 190.2	133	827.9
36692 --	Traffic control equipment:				
36692 00	Vehicular and pedestrian traffic control equipment; electric railway signals and attachments (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	442.7	39	418.3
36693 --	Intercommunication equipment, except telephone and telegraph:				
36693 00	Intercommunication equipment, except telephone and telegraph (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	286.8	49	163.8
36690 --	Communications equipment, n.e.c., n.s.k.	(NA)	145.9	(NA)	(5)
36690 00	Communications equipment, n.e.c., n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	3.1	(NA)	(5)
36690 02	Communications equipment, n.e.c., n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	142.8	(NA)	(5)

Note: In 1987 Census of Manufactures, data for establishments of small single unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoffs used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[3]Due to changes in content for 1987, data for 1982 are not available. In 1987, data for receipts of record publishers are classified in SIC Industry 6794, Patent Owners and Lessors; data for video discs and tapes for home entertainment are classified in SIC 7819, Services Allied to Motion Picture Productions; and data for prepackaged computer software are classified in SIC Industry 7372, Prepackaged Computer Software.

[4]Due to changes made in the 1987 Standard Industrial Classification (SIC), data for 1982 are not available. In 1987, data for communication interface equipment moved from old SIC Industry 3573, Electronic Computing Equipment, to new SIC Industry 3661, Telephone and Telegraph Apparatus; and data for teleprinters moved from old SIC Industry 3661, Telephone and Telegraph Apparatus, to new SIC Industry 3575, Computer Terminals.

[5]SIC Industries 3663, Radio and Television Communications Equipment, and 3669, Communications Equipment, N.E.C., are published as separate industries for the first time in 1987. In 1982, these new industries were both included in old SIC Industry 3662, Radio and Television Communications Equipment.

[6]For 1982, data for product codes 36630 --, 36630 00, 36630 02, 36690 --, 36690 00, and 36690 02 were not available separately but included in old product codes 36620 00(pt) and 36620 02(pt).

Table 3. **Materials Consumed by Kind: 1987 and 1982**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987 Quantity[1]	1987 Delivered cost (million dollars)	1982 Quantity[1]	1982 Delivered cost (million dollars)
	INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT				
	Materials, parts, containers, and supplies	**(X)**	**4 113.5**	**(X)**	**3 647.5**
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331012	Sheet and strip, 1,000 s tons	(S)	13.5	*23.7	23.5
331011	Bars and bar shapes, do	4	3	(S)	5.7
331067	All other carbon steel mill shapes and forms, do	(S)	6		
	Aluminum and aluminum-base alloy, mil lb	(S)	1.5	(D)	[3]
335791	Insulated wire and cable (except magnet wire), do	**26.7	12.7	(S)	6.1
335770	Magnet wire, do	(S)	8	**1.4	2.2
336005	Aluminum and aluminum-base alloy castings (rough and semifinished), do	(S)	1.2	(S)	4.0
	Fractional horsepower electric motors (less than 1 hp):				
362110	Timing motors, synchronous and subsynchronous, millions	(S)	1.4	(S)	4.3
362115	Other fractional horsepower electric motors, excluding timing motors, do			(S)	2.1
367101	Cathode ray picture tubes, thousands	(S)	897.8	*5 770.9	544.9
367400	Transistors, diodes, and rectifiers, millions	(NA)	211.9	**746.6	101.2
367411	Integrated circuits			(X)	55.9
367601	Resistors for electronic circuitry	(X)	16.2	(X)	46.9
367501	Capacitors for electronic circuitry	(X)	27.9	(X)	130.0
367900	Other electronic components and accessories, n.e.c., including phonograph needles, and cutting styli	(X)	353.9	(X)	410.5
365141	Tuners	(X)	133.2	(X)	127.6
365151	Speaker systems and speakers sold separately	(X)	76.0	(X)	139.2
364300	Current-carrying wiring devices	(X)	52.2	(X)	51.6
364401	Noncurrent-carrying wiring devices, including boxes and covers, insulating bushings, nipples, and jacks	(X)	3.5	(X)	4.2
251011	Cabinets (wood, metal, and plastics), thousands	**12 129.6	346.5	**11 015.5	247.2
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	(X)	63.5	(X)	36.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes, mil lb	(S)	7.8	(D)	[3]
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	83.4	(X)	25.9
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	(X)	25.4	(X)	17.6
346901	Metal stampings	(X)	43.5	(S)	59.9
970099	All other materials and components, parts, containers, and supplies	(X)	886.3	(X)	[3]893.8
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	852.4	(X)	706.6
	INDUSTRY 3652, PRERECORDED RECORDS AND TAPES				
	Materials, parts, containers, and supplies	**(X)**	**519.2**	**(X)**	**[4]**
369501	Unrecorded audio-range magnetic tape, with or without cassettes or cartridges, millions	(S)	58.8	(NA)	(NA)
365201	Record blanks, audio, do	(S)	14.0	(NA)	(NA)
369502	Compact disc blanks, do	(D)	[3]	(NA)	(NA)
308962	Empty tape cassettes and cartridges, do	(S)	76.8	(NA)	(NA)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	8.3	(NA)	(NA)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes, mil lb	*39.2	25.0	(NA)	(NA)
260001	Paper and paperboard products (including album covers, sleeves, etc.)	(X)	48.3	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	[3]81.3	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	206.7	(NA)	(NA)
	INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS				
	Materials, parts, containers, and supplies	**(X)**	**7 146.8**	**(NA)**	**[5]**
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes, 1,000 s tons	(S)	3.5	(NA)	(NA)
331012	Sheet and strip, do	(S)	13.4	(NA)	(NA)
331067	All other carbon steel mill shapes and forms, do	(S)	8.1	(NA)	(NA)
	Alloy steel, except stainless:				
331021	Bars and bar shapes, 1,000 s tons	(S)	4.2	(NA)	(NA)
331029	All other alloy steel mill shapes and forms, do			(NA)	(NA)
	Stainless steel:				
331033	Sheet and strip, 1,000 s tons	(S)	3.7	(NA)	(NA)
331050	All other stainless steel mill shapes and forms, do			(NA)	(NA)
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only), mil lb	(S)	1.8	(NA)	(NA)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes, do	(S)	4.1	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs, do	(S)	10.9	(NA)	(NA)
335152	Pipe and tube, do			(NA)	(NA)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil, mil lb	**6.9	9.0	(NA)	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc., do	(S)	5.8	(NA)	(NA)
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.), do	(S)	4	(NA)	(NA)
335791	Insulated wire and cable (except magnet wire), do	(S)	57.9	(NA)	(NA)
335770	Magnet wire, do	(S)	7.7	(NA)	(NA)

See footnotes at end of table.

Table 3. **Materials Consumed by Kind: 1987 and 1982**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS—Con.				
	Castings (rough and semifinished):				
332007	Iron (gray and malleable) and steel, 1,000 s tons	(D)	(3)	(NA)	(NA)
336005	Aluminum and aluminum-base alloy, mil lb	(S)	7.7	(NA)	(NA)
336003	Other nonferrous, do	(D)	(3)	(NA)	(NA)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes, do	(S)	38.9	(NA)	(NA)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	33.8	(NA)	(NA)
367408	Semiconductors, millions	(S)	410.7	(NA)	(NA)
367501	Capacitors for electronic circuitry	(X)	117.0	(NA)	(NA)
367601	Resistors for electronic circuitry	(X)	53.7	(NA)	(NA)
367900	Other electronic components and accessories, n.e.c.	(X)	1 923.8	(NA)	(NA)
364300	Current-carrying wiring devices	(X)	93.4	(NA)	(NA)
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	(X)	50.7	(NA)	(NA)
339913	Ferrites (powders and paste)	(X)	3.9	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	[2] 592.1	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	1 690.6	(NA)	(NA)
	INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT				
	Materials, parts, containers, and supplies	**(X)**	**4 359.4**	**(NA)**	**(4)**
	Mill shapes and forms, except castings:				
331001	Carbon steel, 1,000 s tons	(S)	6.2	(NA)	(NA)
331020	Alloy steel, except stainless, do	(S)	2.7	(NA)	(NA)
331031	Stainless steel, do	(S)	7.6	(NA)	(NA)
	Copper and copper-base alloy:				
335728	Bare wire for electrical conduction only, mil lb	(S)	4	(NA)	(NA)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes, do	(S)	1.9	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs, do	(S)	1.7	(NA)	(NA)
335152	Pipe and tube, do	(S)	2.7	(NA)	(NA)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil, mil lb	(S)	20.3	(NA)	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc., do	(S)	12.1	(NA)	(NA)
335008	All other aluminum mill shapes and forms, do	(S)	7.4	(NA)	(NA)
335616	Nickel and nickel-base alloy, do	(S)	.3	(NA)	(NA)
335691	Tantalum mill products, 1,000 lb	(D)	(3)	(NA)	(NA)
335791	Insulated wire and cable (except magnet wire), mil lb	(S)	37.5	(NA)	(NA)
335770	Magnet wire, do	(S)	1.7	(NA)	(NA)
	Castings (rough and semifinished):				
332012	Iron (gray and malleable) and steel, 1,000 s tons	(D)	(3)	(NA)	(NA)
336005	Aluminum and aluminum-base alloy, mil lb	(S)	21.6	(NA)	(NA)
336003	Other nonferrous, do	(S)	7.6	(NA)	(NA)
339915	Metal powders, do	–	–	(NA)	(NA)
333902	Precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.), except gold, 1,000 troy ounces	(S)	2.2	(NA)	(NA)
333905	Gold, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.), do	(S)	4.4	(NA)	(NA)
362111	Fractional horsepower electric motors less than 1 hp, thousands	(S)	22.6	(NA)	(NA)
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic-type components	(X)	931.9	(NA)	(NA)
281995	Silicon, hyperpure, 1,000 kilograms	(D)	(3)	(NA)	(NA)
333977	Germanium, 1,000 lb	(S)	3.2	(NA)	(NA)
265001	Paper and paperboard containers, including shipping sacks and other paper packaging products	(X)	22.0	(NA)	(NA)
333998	Silicon, unalloyed, 1,000 s tons	(D)	(3)	(NA)	(NA)
339913	Ferrites (powder and paste)	(X)	6	(NA)	(NA)
	Glass and glass products:				
322923	Tube blanks, except color television picture	(X)	2.4	(NA)	(NA)
322924	Color television picture tube blanks			(NA)	(NA)
320311	Other than tube blanks	(X)	1.4	(NA)	(NA)
	Bearings, including mounted and unmounted:				
356218	Ball	(X)	5	(NA)	(NA)
356201	Roller	(X)	1	(NA)	(NA)
364300	Current-carrying wiring devices	(X)	61.4	(NA)	(NA)
382501	Electrical instrument mechanisms and meter movements, including instruments relays	(X)	14.5	(NA)	(NA)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., excluding sheets, rods, tubes, and shapes, mil lb	(S)	6.2	(NA)	(NA)
344401	Sheet metal products, except stampings	(X)	37.2	(NA)	(NA)
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	(X)	38.3	(NA)	(NA)
346901	Metal stampings	(X)	35.8	(NA)	(NA)
308006	Fabricated plastics products, except gaskets, hoses, and belting	(X)	23.7	(NA)	(NA)
365150	Loud speakers, microphones, and tuners (all types)	(X)	24.6	(NA)	(NA)
366301	Electronic communication equipment	(X)	399.8	(NA)	(NA)
357004	Electronic computing equipment and parts	(X)	61.0	(NA)	(NA)
382700	Optical instruments and lenses, except sighting, tracking, and fire control	(X)	.8	(NA)	(NA)
333951	Doped chemicals for electronic use	(X)	.9	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	[1] 044.0	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	1 488.2	(NA)	(NA)

See footnotes at end of table.

Table 3. **Materials Consumed by Kind: 1987 and 1982**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.				
	Materials, parts, containers, and supplies	**(X)**	**754.7**	**(NA)**	(*)
	Mill shapes and forms, except castings:				
331001	Carbon steel (1,000 s tons)	(S)	3.3	(NA)	(NA)
331020	Alloy steel, except stainless (do.)	(S)	5.6	(NA)	(NA)
331031	Stainless steel (do.)			(NA)	(NA)
	Copper and copper-base alloy:				
335728	Bare wire for electrical conduction only (mil lb.)			(NA)	(NA)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes (do.)	(S)	1.5	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs (do.)			(NA)	(NA)
335152	Pipe and tube (do.)			(NA)	(NA)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil (mil lb.)	(S)	3.6	(NA)	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. (do.)	(S)	2.8	(NA)	(NA)
335008	All other aluminum mill shapes and forms (do.)	(S)	.6	(NA)	(NA)
335616	Nickel and nickel-base alloy (do.)	(D)	(D)	(NA)	(NA)
335691	Tantalum mill products (1,000 lb.)	(D)	(D)	(NA)	(NA)
335791	Insulated wire and cable (except magnet wire) (mil lb.)	(S)	4.2	(NA)	(NA)
335770	Magnet wire (do.)	(S)	1.5	(NA)	(NA)
	Castings (rough and semifinished):				
332012	Iron (gray and malleable) and steel (1,000 s tons)	(S)	7.5	(NA)	(NA)
336005	Aluminum and aluminum-base alloy (mil lb.)	(S)	11.8	(NA)	(NA)
336003	Other nonferrous (do.)	*3.5	3.7	(NA)	(NA)
339915	Metal powders (do.)	(D)	(D)	(NA)	(NA)
333902	Precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.), except gold (1,000 troy ounces)	(S)	4	(NA)	(NA)
333905	Gold, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.) (do.)	(S)	1	(NA)	(NA)
362111	Fractional horsepower electric motors less than 1 hp (thousands)	(S)	5.0	(NA)	(NA)
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic-type components	(X)	80.9	(NA)	(NA)
281995	Silicon, hyperpure (1,000 kilograms)	–	–	(NA)	(NA)
333977	Germanium (1,000 lb.)	(D)	(D)	(NA)	(NA)
265001	Paper and paperboard containers, including shipping sacks and other paper packaging products	(X)	6.1	(NA)	(NA)
333998	Silcon, unalloyed (1,000 s tons)	(D)	(D)	(NA)	(NA)
339913	Ferrites (powder and paste)	(X)	1	(NA)	(NA)
	Glass and glass products:				
322923	Tube blanks, except color television picture	(X)	(*)	(NA)	(NA)
322924	Color television picture tube blanks	(X)	–	(NA)	(NA)
320311	Other than tube blanks	(X)	.7	(NA)	(NA)
	Bearings, including mounted and unmounted:				
356218	Ball	(X)	(D)	(NA)	(NA)
356201	Roller	(X)	(D)	(NA)	(NA)
364300	Current-carrying wiring devices	(X)	17.5	(NA)	(NA)
382501	Electrical instrument mechanisms and meter movements, including instruments relays	(X)	7.2	(NA)	(NA)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., excluding sheets, rods, tubes, and shapes (mil lb.)	(S)	3.0	(NA)	(NA)
344401	Sheet metal products, except stampings	(X)	8.4	(NA)	(NA)
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	(X)	11.1	(NA)	(NA)
346901	Metal stampings	(X)	4.1	(NA)	(NA)
308006	Fabricated plastics products, except gaskets, hoses, and belting	(X)	17.7	(NA)	(NA)
365150	Loud speakers, microphones, and tuners (all types)	(X)	4.9	(NA)	(NA)
366301	Electronic communication equipment	(X)	56.7	(NA)	(NA)
357004	Electronic computing equipment and parts	(X)	17.2	(NA)	(NA)
382700	Optical instruments and lenses, except sighting, tracking, and fire control	(X)	3.1	(NA)	(NA)
333951	Doped chemicals for electronic use	(X)	(Z)	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	150.2	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	313.4	(NA)	(NA)

[1]For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]Data are included with material code 970099 to avoid disclosing data for individual companies.

[4]Industry content is new for 1987; therefore, 1982 material consumed data are not available.

[5]Industry definition is new for 1987; therefore, 1982 materials consumed data are not available. In 1982, materials consumed data were published under old SIC Industry 3661, Telephone and Telegraph Apparatus.

[6]Industry definition is new for 1987; therefore, 1982 materials consumed data are not available. In 1982, materials consumed data were published as part of old SIC Industry 3662, Radio and Television Communications Equipment.

[7]For 1987, data for material code 322923 are combined with material code 320311 to avoid disclosing data for individual companies.

APPENDIX
Scope and Coverage and Explanation of Terms

GENERAL

The 1987 Census of Manufactures is the 32nd census of manufacturing establishments conducted in the United States. For 1987, it was conducted as part of the economic censuses, which included the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses, under authority of title 13 of the United States Code. Title 13 specifies that an economic census be conducted every 5 years to cover years ending in 2 and 7.

SCOPE AND COVERAGE

Establishment Basis of Reporting

The census of manufactures is conducted on an establishment basis. All manufacturing establishments with one paid employee or more at any time during the year are covered by the census of manufactures. Therefore, a company operating at more than one location is required to file a separate report for each location. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units which service manufacturing establishments of the same company. Where these auxiliary operations are conducted at the same location as the manufacturing operation, they are usually included in the report for the operating manufacturing establishment.

Use of Administrative Records

From a universe of approximately 350,000 manufacturing establishments in the 1987 Census of Manufactures, approximately 150,000 small single-establishment companies were excused from filing reports. Selection of the small establishment nonmail cases was done on an industry-by-industry basis. A variable cutoff was used to determine those establishments for which administrative records were to be used in place of a census report. The cutoffs were selected so the administrative-record cases would account for approximately 3 percent or less of the value of shipments for the industry. These cutoffs were then adjusted so that all single-establishment companies with less than 5 employees were excluded from the mail canvass, while all establishments with more than 20 employees were included. Where establishments in the 5 to 20 employee size range were included in the mail canvass, an abbreviated census form was frequently used.

For these nonmail establishments, (and a small number of larger establishment whose reports were not received at the time the data were tabulated) data on employment, payroll, and receipts were obtained from administrative records of other government agencies rather than from census forms. The administrative-record information was then used in conjunction with industry averages to estimate the data for these establishments. The value of shipments and cost of materials were not distributed among specific products and materials but were included in the product and material "not specified by kind" (n.s.k.) categories.

EXPLANATION OF TERMS

Number of establishments and companies–A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

All employees–Includes all full-time and part-time employees on the payrolls at any time during the year. Included are all persons on paid sick leave, paid holidays, and paid vacations. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average of those for midmonth payroll periods of March, May, August, and November.

Production workers–Includes workers up through the working-supervisor level engaged in fabricating, processing, assembling, inspecting, receiving, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial, guard services, product development, auxiliary production for plant's own use (e.g., powerplant), recordkeeping, and other closely associated services. Truckdrivers delivering ready-mixed concrete are also included in production workers.

Other employees–Includes nonproduction personnel, including those engaged in the following activities: supervision above working-supervisor level, sales (including driver/salespersons), sales delivery (truckdrivers and helpers), advertising, credit collection, installation and

servicing of own product, clerical and routine office functions, executive, purchasing, finance, legal, personnel (including cafeteria, etc.), professional, and technical employees.

Payroll–Includes the gross earnings for the "employees" defined above, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. Respondents were told that in reporting they could follow the definition of payrolls used for calculating the Federal withholding tax.

Production-worker hours–Covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave when the employee was not at the plant.

Cost of materials–Refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuels consumed, regardless of whether they were purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (a) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year; (b) electric energy purchased; (c) fuels consumed for heat, power, or generating electricity; (d) work done by others on materials or parts furnished by manufacturing establishments (contract work); and (e) products bought and resold in the same condition.

Specific materials consumed (table 3)–In addition to the total cost of materials which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. These inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Establishments consuming less than a specified amount (usually $10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which administrative records were used was estimated as "not specified by kind" (n.s.k.).

Value of shipments and other receipts–Generally refers to received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts such as receipts for contract work performed for others, installation and repair receipts, sale of scrap, and sale of products bought and resold without further processing. Included are all items made by or for the establishment from materials owned by it whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In a few industries, the value of production or value of work completed is used instead of value of shipments. These industries are identified in the introduction and are footnoted in table 1.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, that is, including not only the direct costs of production but also a reasonable proportion of "all other costs" (including company overhead and profit).

Shipments or production of individual products (table 2)–In the 1987 census, detailed shipment information was collected for approximately 11,000 individual products. These products are identified by a seven-digit code and are grouped into approximately 1,500 classes of products, which in turn are primary to 459 four-digit industries. Data at the five-digit product-class level have been collected each year as part of the annual survey of manufactures. Information at the seven-digit level, collected for many industries in the current industrial reports program, is not included in this table.

Value added by manufacture–This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments for products manufactured plus receipts for services rendered. The result of this calculation is then adjusted by the addition of value added by merchandising operations (that is, the difference between the sales value and cost of merchandise sold without further manufacturing, processing, or assembly) plus the net change in finished goods and work-in-process inventories between the beginning and end of the year.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1), value added is adjusted only for the change in work-in-process inventories between the beginning and end of the year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

Value added avoids the duplication in the figure for value of shipments which results from the use of products of some establishments as materials by others. Value

added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

Expenditures for new plant and equipment–Establishments in operation and any known plants under construction were asked to report their expenditures for (a) permanent additions and major alterations to manufacturing establishments and (b) new machinery and equipment used for replacement and additions to plant capacity if they are of the type for which depreciation accounts are ordinarily maintained.

These totals exclude expenditures for used plant and equipment, expenditures for land, and cost of maintenance and repairs charged as current operating expenses. Data for used plant and equipment will be published in the final industry bulletin.

End-of-year inventories–Comprised of (a) finished products; (b) work-in-process, and (c) materials, supplies, fuels, etc. Beginning in 1982, respondents were asked to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method. Therefore, 1982 through 1987 data for inventories are not strictly comparable to prior-year data.

Specialization and coverage ratios–An establishment is classified in a particular industry if its shipments of primary products of the industry exceed in value its shipments of the products of any other single industry. An establishments' shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). The following ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in table 1 and data on product shipments shown in table 2.

Specialization ratio–Represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio–Represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments, wherever classified.